

Written on AUGUST 15, 2011 AT 9:45 AM by PDILLARD

NMRC Researchers Train Laboratory Personnel in Azerbaijan

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As part of the Rickettsial Diseases Research Program at the Naval Medical Research Center (NMRC) I was part of a team that traveled to Azerbaijan last spring to take part in a very exciting collaborative research project.

We trained Azerbaijan Ministry of Defense (MoD) laboratory personnel in the use of enzyme-linked immunosorbent assays (ELISA), a biochemical technique used to detect the presence of antibodies in a sample. In this case we were looking for group-specific rickettsial IgG antibodies. IgG, also called gamma globulin, is the most common antibody in the human immune system and its presence indicates an immune

response to a foreign pathogen such as the rickettsial group of microorganisms. The training took place at an Azerbaijan Ministry of Health (MoH) laboratory in Baku, Azerbaijan.

Two of the assays, which were developed at NMRC, will provide evidence of previous infection with typhus group rickettsiae (TGR) and spotted fever group rickettsiae (SFGR). These two assays, TGR-IgG and SFGR-IgG specific ELISAs, are currently being used in a U.S. Defense Threat Reduction Agency sponsored study supporting a U.S. – Azerbaijan collaborative study to assess the risk of infectious diseases to MoH personnel deployed to different regions of Azerbaijan.

Following basic training, recruits from Azerbaijan will be asked to join the study. After the researchers receive informed consent from the volunteers they will provide a blood sample and fill out a simple questionnaire. One year later, at their new command, the same volunteers will be asked to provide a second blood sample and again fill out a questionnaire. MoD personnel will test the samples using ELISA antibody titers from the initial blood

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sample and compare this to samples collected one year later at their new command. If there is a fourfold or greater rise in titer between the samples to a particular agent or group of agents, it will indicate the individuals were infected with the agent at the site of the new command. These results will show the MoD the presence of infectious diseases at that base and in that area of the country.

Assessment of the initial blood samples alone will give the MoD and the MoH information about what infectious diseases are circulating among individuals from all over Azerbaijan prior to coming into the military.

To date about 450 personnel have enrolled in the study and about three percent have preexisting antibodies to SFGR, indicating that at some time in their lives they were infected by spotted fever rickettsiae. None of the enrollees had evidence of infection with typhus group rickettsiae.

Members of the NMRC team are still conducting training, providing reagents and expertise and will continue to visit Azerbaijan to assist in the performance of this research project.

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